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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/642,600	08/19/2003	Krishna Balachandran	29250-001064/US	2805
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HARNESS, DICKEY & PIERCE, P.L.C. P.O. BOX 8910 RESTON, VA 20195			KHAN, SUHAIL	
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			2686	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/642,600	Applicant(s) BALACHANDRAN ET AL.	
	Examiner Suhail Khan	Art Unit 2686	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 19-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18 and 25 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>8/19/2003</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-2, 5-6, 8-9, 11-12 and 17 rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent App. Pub. No. 2004/0203756 to Lin et al.

Referring to **claim 1**, Lin et al disclose a method of tracking a user (page 1, paragraph 17, location tracking) in a communication network (page 1, paragraph 17, network) supporting a broadcast-multicast service (page 1, paragraph 5, multicast management mechanism), comprising: classifying groups of users into tracking areas at the network (page 1, paragraph 17, Location Areas, interpreted as being the tracking areas, consists of mobile stations; also figure 1); and tracking movement of at least one user of the group as it crosses a boundary between two tracking areas in the network (page 1, paragraph 17, update the location of the MS when it moves from an LA to another).

Referring to **claim 2**, Lin et al disclose the method of claim 1, wherein the classifying step further includes classifying non-overlapping sectors into broadcast-multicast service tracking areas, each sector including one or more multicast groups of users (figure 1 shows different non-overlapping Location Areas (LA), interpreted as being tracking areas, comprising one or more mobile stations; page 1, paragraph 17, each LA consists of a group of base stations

that communicate with mobile stations, hence consisting of sectors; page 1, paragraph 5, multicast management mechanism).

Referring to **claim 5**, Lin et al disclose the method of claim 1, wherein the tracking step further includes: tracking the user based on information related to a tracking area change received from the user (page 1, paragraph 17, update MS location when it moves from one LA to another; page 2, paragraph 24, MS sends a location update request message to the MSC).

Referring to **claim 6**, Lin et al disclose the method of claim 5, wherein the received information includes a tracking area registration update message related to a tracking area change of the user to another tracking area (page 4, paragraph 11, multicast user registration comprises mobile device sending a location update request; page 2, paragraph 24, MS sends a location update request message to the MSC; page 1, paragraph 17, update MS location when it moves from one LA to another).

Referring to **claim 8**, Lin et al disclose the method of claim 1, wherein the tracking step further includes: tracking the user based on a registration message received from the user subsequent to a detection of a tracking area change by the user (page 2, paragraph 24, MS sends a location update request message to the MSC; page 1, paragraph 17, update MS location when it moves from one LA to another).

Referring to **claim 9**, Lin et al disclose the method of claim 1, wherein non-overlapping tracking areas are defined and consist of one or more sectors in the network (figure 1 shows different non-overlapping Location Areas (LA), interpreted as being tracking areas, comprising one or more mobile stations; page 1, paragraph 17, each LA consists of a group of base stations that communicate with mobile stations, hence consisting of sectors), and the tracking step further

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includes: the network transmitting information related to the tracking areas of current and neighboring sectors (page 2, paragraph 24, MS receives a location signal other than that of its original MSC); and the user responding to these transmission to enable tracking of the user by the network (page 2, paragraph 24, MS sends location update request message to new MSC).

Referring to **claim 11**, Lin et al disclose a method by which a user provides a tracking area registration update to a network supporting a broadcast-multicast service (page 1, paragraph 5, multicast management mechanism), the network serving a plurality of tracking areas, each tracking area containing one or more non-overlapping sectors (figure 1 shows different non-overlapping Location Areas (LA), interpreted as being tracking areas, comprising one or more mobile stations; page 1, paragraph 17, each LA consists of a group of base stations that communicate with mobile stations, hence consisting of sectors), comprising: detecting a change in tracking area as the user crosses from one tracking area to another (page 1, paragraph 17, update MS location when it moves from one LA to another); and sending a tracking area registration update message to the network to update the location of the user (page 2, paragraph 24, MS sends a location update request message to the MSC).

Referring to **claim 12**, Lin et al disclose the method of claim 11, wherein detecting a change in tracking area is based on a trigger (page 2, paragraph 24, the MS receives a location signal other than that of its original MSC, this location signal is interpreted as being a trigger).

Referring to **claim 17**, Lin et al disclose a method of tracking a user (page 1, paragraph 17, location tracking) in a communication network supporting a broadcast-multicast service (page 1, paragraph 5, multicast management mechanism), the network serving a plurality of tracking areas, each tracking area containing one or more non-overlapping sectors, each sector

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having one or more groups of users (figure 1 shows different non-overlapping Location Areas (LA), interpreted as being tracking areas, comprising one or more mobile stations; page 1, paragraph 17, each LA consists of a group of base stations that communicate with mobile stations, hence consisting of sectors), comprising: transmitting an indicator for enabling tracking area updates from users of the sector (page 2, paragraph 23, MS receives a location signal other than that of its original MSC); and determining user location of at least one user within one of the tracking areas based on a response from the at least one user to the indicator (page 2, paragraph 24, MS sends a location update request message).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3-4, 13-15 and 18 rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent App. Pub. No. 2004/0203756 to Lin et al in view of U.S. Patent App. Pub. No. 2004/0203979 to Attar et al.

Referring to **claim 3**, Lin et al disclose the method of claim 1, further comprising: determining a change in tracking area for the at least one user (page 1, paragraph 17, update the location of the MS when it moves from an LA to another). Lin et al do not disclose determining the change based on one of an adding criteria and a dropping criteria. The examiner maintains that the concept of determining change based on one of an adding criteria and a dropping criteria was well known in the art as taught by Chen et al.

In a similar field of endeavor, Attar et al. show determining if the strength of a received pilot signal is above a predetermined threshold or below a predetermine drop threshold (page 8, paragraph 113).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lin et al. to show determining a change in tracking area for the at least one user based on one of an adding criteria and a dropping criteria, as taught by Attar et al., the motivation being limiting the degree of variation in the combined radiated signal (Attar et al, page 8, paragraph 113).

Referring to **claim 4**, Lin et al disclose the method of claim 3, wherein each tracking area includes one or more groups of sectors, each sector including one or more multicast groups of users (figure 1 shows different non-overlapping Location Areas (LA), interpreted as being tracking areas, comprising one or more mobile stations; page 1, paragraph 17, each LA consists of a group of base stations that communicate with mobile stations, hence consisting of sectors) Lin et al. do not disclose that the adding criteria and dropping criteria includes comparing pilot signal strengths of sectors to at least one threshold. The examiner maintains that the concept that the adding criteria and dropping criteria includes comparing pilot signal strengths of sectors to at least one threshold was well known in the art as taught by Attar et al.

In a similar field of endeavor, Attar et al show determining if the strength of a received pilot signal is above a predetermined threshold or below a predetermine drop threshold (page 8, paragraph 113).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lin et al to show that each tracking area includes one or more groups of

sectors, each sector including one or more multicast groups of users, and the adding criteria and dropping criteria includes comparing pilot signal strengths of sectors to at least one threshold, as taught by Attar et al, the motivation being limiting the degree of variation in the combined radiated signal (Attar et al, page 8, paragraph 113).

Referring to **claim 13**, Lin et al disclose the method of claim 12 (page 1, paragraph 17, location tracking) and registration messages (page 4, paragraph 11, multicast user registration comprises mobile device sending a location update request, messages sent from station, hence uplink). Lin et al do not disclose that the trigger is based on expiration of a given time interval to control rate at which registration messages are sent on the uplink. The examiner maintains that the concept that the trigger is based on expiration of a given time interval to control rate at which registration messages are sent on the uplink was well known in the art as taught by Attar et al.

In a similar field of endeavor, Attar et al show determining if the strength of a received pilot signal is above a predetermined threshold or below a predetermine drop threshold (page 8, paragraph 113) and controlling the transmission rate of a channel (page 2, paragraph 36).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lin et al to show that the trigger is based on expiration of a given time interval to control rate at which registration messages are sent on the uplink, as taught by Attar et al, the motivation being limiting the degree of variation in the combined radiated signal (Attar et al, page 8, paragraph 113).

Referring to **claim 14**, Lin et al disclose the method of claim 12 (page 1, paragraph 17, location tracking). Lin et al do not disclose that the trigger is based on a comparison of pilot signal strengths of one or more sectors of a tracking area to a given threshold. The examiner

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maintains that the concept that the trigger is based on a comparison of pilot signal strengths of one or more sectors of a tracking area to a given threshold was well known in the art as taught by Attar et al.

In a similar field of endeavor, Attar et al show determining if the strength of a received pilot signal is above a predetermined threshold or below a predetermine drop threshold (page 8, paragraph 113).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lin et al to show the trigger based on a comparison of pilot signal strengths of one or more sectors of a tracking area to a given threshold, as taught by Attar et al, the motivation being limiting the degree of variation in the combined radiated signal (Attar et al, page 8, paragraph 113).

Referring to **claim 15**, Lin et al disclose the method of claim 12 (page 1, paragraph 17, location tracking). Lin et al do not disclose that the trigger is based on pilot signal strengths of one or more sectors of a tracking area exceeding a given threshold or falling below a given threshold for a given period of time. The examiner maintains that the concept that the trigger is based on pilot signal strengths of one or more sectors of a tracking area exceeding a given threshold or falling below a given threshold for a given period of time was well known in the art as taught by Attar et al.

In a similar field of endeavor, Attar et al show determining if the strength of a received pilot signal is above a predetermined threshold or below a predetermine drop threshold (page 8, paragraph 113).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lin et al to show the trigger is based on pilot signal strengths of one or more sectors of a tracking area exceeding a given threshold or falling below a given threshold for a given period of time, as taught by Attar et al, the motivation being limiting the degree of variation in the combined radiated signal (Attar et al, page 8, paragraph 113).

Referring to **claim 18**, Lin et al disclose the method of claim 17, wherein the determining step includes: determining a change in tracking area, and the network receiving the response based on a result of the evaluation, the response embodied as a tracking area update registration message from the user (page 2, paragraphs 23 and 24, MS receives a location signal other than that of its original MSC, MS sends a location update request message to its new MSC). Lin et al do not disclose after expiration of a given time interval, the user evaluating pilot strengths of M strongest sectors against a given criteria. The examiner maintains that concept that after expiration of a given time interval, the user evaluating pilot strengths of M strongest sectors against a given criteria was well in the art as taught by Attar et al.

In a similar field of endeavor, Attar et al show selecting base stations based on parameters such as channel quality (page 6, paragraph 92).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lin et al to show that the determining step includes: after expiration of a given time interval, the user evaluating pilot strengths of M strongest sectors against a given criteria to determine a change in tracking area, and the network receiving the response based on a result of the evaluation, the response embodied as a tracking area update registration message

from the user, as taught by Attar et al, the motivation being limiting the degree of variation in the combined radiated signal (Attar et al, page 8, paragraph 113).

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 7, 10, 16 and 25 rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent App. Pub. No. 2004/0203756 to Lin et al in view of U.S. Patent App. Pub. No. 2003/0087653 to Leung et al.

Referring to **claim 7**, Lin et al disclose the method of claim 6, wherein the tracking area registration update message (page 4, paragraph 11, multicast user registration comprises mobile device sending a location update request) is enabled or disabled based on an indicator value received by the user (page 2, paragraph 23 and 24, MS receives a location signal other than that of its original MSC, MS sends a location update request message to its new MSC). Lin et al do not disclose that the indicator value is received in overhead by the user from a serving sector. The examiner maintains that concept that the indicator value is received in overhead by the user from a serving sector was well known in the art as taught by Leung et al.

In a similar field of endeavor, Leung et al show transmission of broadcast service based on a trigger (page 1, paragraph 9) and also show header information (page 2, paragraph 32).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lin et al to show that the tracking area registration update message is enabled or disabled based on an indicator value received in overhead by the user from a serving

sector, as taught by Leung et al, the motivation being identifying the users by a unique identifier which is included in the addressing information (page 1, paragraph 7).

Referring to **claim 10**, Lin et al disclose the method of claim 5, wherein the information related to tracking areas is transmitted to the one or more sectors (page 2, paragraph 23 and 24, MS receives a location signal other than that of its original MSC, MS sends a location update request message to its new MSC). Lin et al do not disclose that the tracking information is included in system overhead transmitted. The examiner maintains that the concept of including the tracking information in the system overhead transmitted was well known in the art as taught by Leung et al.

In a similar field of endeavor, Leung et al show transmission of broadcast service based on a trigger (page 1, paragraph 9) and also show header information (page 2, paragraph 32).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lin et al to show that the information related to tracking areas is included in system overhead transmitted to the one or more sectors, as taught by Leung et al, the motivation being identifying the users by a unique identifier which is included in the addressing information (page 1, paragraph 7).

Referring to **claim 16**, Lin et al disclose the method of claim 11, further comprising an indicator enabling or disabling of tracking area registration update messages from users in a given sector (page 2, paragraph 23 and 24, MS receives a location signal other than that of its original MSC, MS sends a location update request message to its new MSC). Lin et al do not disclose receiving a system overhead message from a transmitting sector that includes the

indicator. The examiner maintains that the concept of receiving a system overhead message that includes an indicator was well known in the art as taught by Leung et al.

In a similar field of endeavor, Leung et al show transmission of broadcast service based on a trigger (page 1, paragraph 9) and also show header information (page 2, paragraph 32).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lin et al to show receiving a system overhead message from a transmitting sector, the overhead message including an indicator enabling or disabling of tracking area registration update messages from users in a given sector, as taught by Leung et al, the motivation being identifying the users by a unique identifier which is included in the addressing information (page 1, paragraph 7).

Referring to **claim 25**, Lin et al disclose a network supporting a broadcast-multicast service (page 1, paragraph 5, multicast management mechanism) and serving a plurality of sectors, groups of sectors further classified by the network into a plurality of tracking areas, each sector having one or more groups of users (figure 1 shows different non-overlapping Location Areas (LA), interpreted as being tracking areas, comprising one or more mobile stations; page 1, paragraph 17, each LA consists of a group of base stations that communicate with mobile stations, hence consisting of sectors), a method of obtaining registration to track location of a user in a tracking area (page 4, paragraph 11, multicast user registration comprises mobile device sending a location update request), transmitting updates from the users regarding a change in tracking area (page 2, paragraph 23 and 24, MS receives a location signal other than that of its original MSC, MS sends a location update request message to its new MSC); and receiving a registration from at least one user that is based on user detection of a change in tracking area

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membership for the user (page 4, paragraph 11, multicast user registration comprises mobile device sending a location update request). Lin et al. do not disclose transmitting an overhead message from each sector to its corresponding groups of users, the overhead message specifying the updates. The examiner maintains that the concept of transmitting an overhead message from each sector to its corresponding groups of users, the overhead message specifying the updates was well known in the art as taught by Leung et al.

In a similar field of endeavor, Leung et al show transmission of broadcast service based on a trigger (page 1, paragraph 9) and also show header information (page 2, paragraph 32).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Lin et al to a network supporting a broadcast-multicast service and serving a plurality of sectors, groups of sectors further classified by the network into a plurality of tracking areas, each sector having one or more groups of users, a method of obtaining registration to track location of a user in a tracking area, comprising: transmitting an overhead message from each sector to its corresponding groups of users, the overhead message specifying updates from the users regarding a change in tracking area; and receiving a registration from at least one user that is based on user detection of a change in tracking area membership for the user, as taught by Leung et al, the motivation being identifying the users by a unique identifier which is included in the addressing information (page 1, paragraph 7).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of the art with respect to Multicast-Broadcast Communication.

U.S. Pat. No. 5659596 to Dunn

U.S. Pat. No. 6879825 to Daly

U.S. Pat. App. Pub. No. 2003/0134655 to Chen et al.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Suhail Khan whose telephone number is (571) 272-7910. The examiner can normally be reached on M-F from 8 am to 4:30 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha Banks-Harold, can be reached at (571) 272-7905.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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